


NORTH  
**Dakota** | Water Resources  
Be Legendary.





# DEVILS LAKE

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OUTLET ADVISORY UPDATE  
2022

NORTH  
**Dakota** | Water Resources  
Be Legendary.

May 11, 2022



# OUTLINE

- **Introduction & Membership Term Review**
  - Andrea Travnicek, Director
- **Devils Lake Basin Review**
  - Jon Kelsch, DWR Director of Water Development
- **National Weather Service Situational Update**
  - Amanda Lee, NWS Grand Forks Service Hydrologist
- **2021 Operational Summary**
  - Jon Kelsch, DWR Director of Water Development
- **2021 Water Quality Review**
  - NDDEQ
- **Outlook For 2022 Outlet Operations**
- **Status By Committee Members**
- **Final Comments**





# DLOMAC MEMBERSHIP TERMS

## Devils Lake Outlet Management Advisory Committee

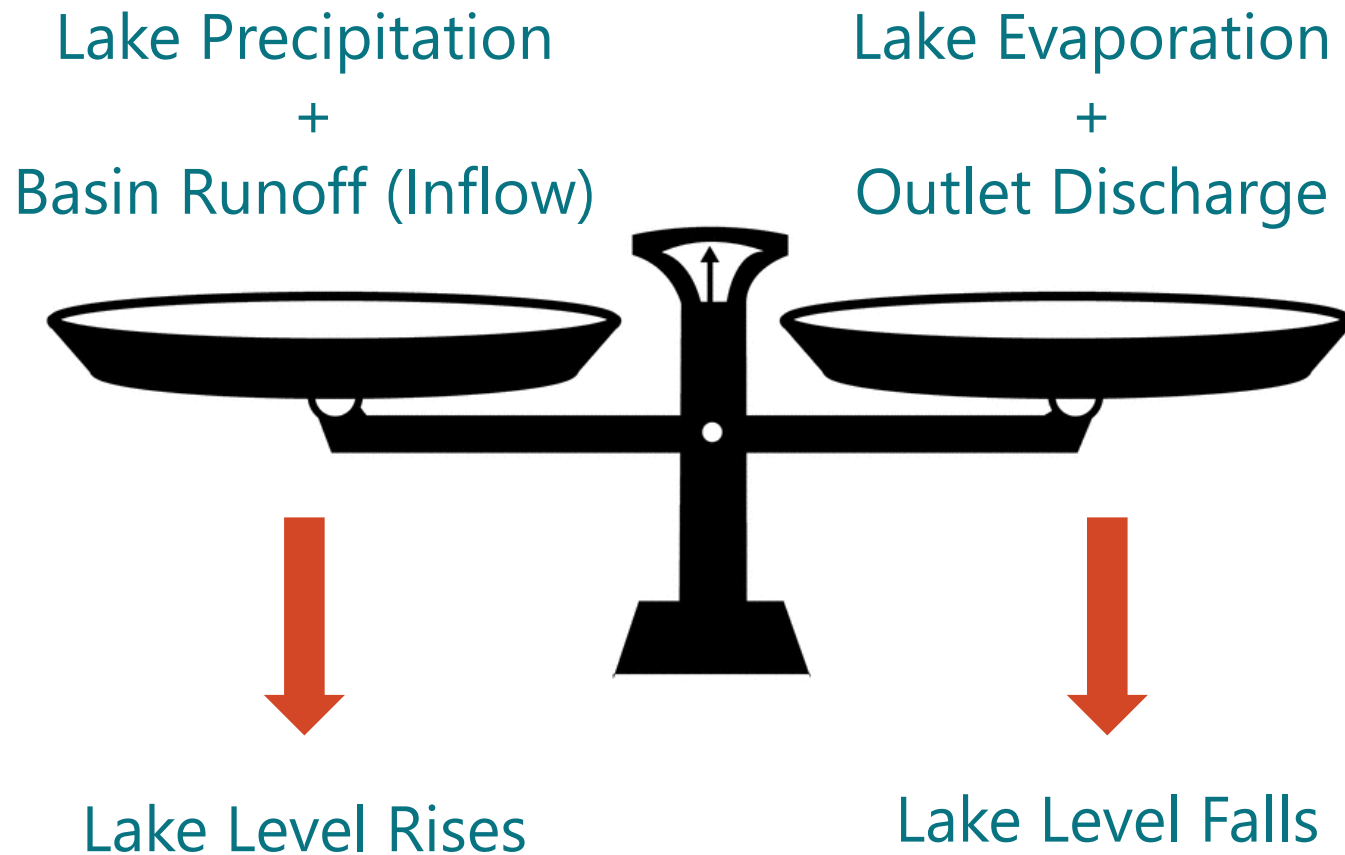
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Board Summary	
Type	Advisory
Governed By	NDCC — <a href="https://www.legis.nd.gov/cencode/t61c36.pdf?20150709172913">https://www.legis.nd.gov/cencode/t61c36.pdf?20150709172913</a>
Board Summary	In response to rising water levels at Devils Lake, the State of North Dakota constructed outlets to direct water out of the basin as necessary. The Devils Lake Outlet Management Advisory Committee exists to advise the governor and State Water Commission on the operations of all Devils Lake outlets. The committee may recommend criteria for operation of each outlet based on outflow volumes, water quality considerations and the risk of an overflow of Devils Lake. Localities surrounding the lake and downstream outlets — including the counties of Benson, Ramsey, Towner, Nelson and Barnes and the cities of Devils Lake, Valley City, Lisbon/Fort Ransom, Fargo and Grand Forks — are represented on the committee, as well as representatives from the legislative assembly, the Devils Lake Joint Water Resource Board, Spirit Lake Nation, Minnesota and Manitoba. Any recommendations developed by the committee must receive support from ten of the seventeen members of the committee before submission to the governor or State Water Commission. Any recommendation not receiving majority support but receiving support from at least five members may be submitted as a minority recommendation.
Compensation	Voluntary
Term Length	4 years, no term limit
Meeting Frequency	

Members With Upcoming  
Term Expirations Are  
Encouraged To Apply For  
Reappointment Through The  
Board Application Portal



# DEVILS LAKE BASIN WATER BALANCE



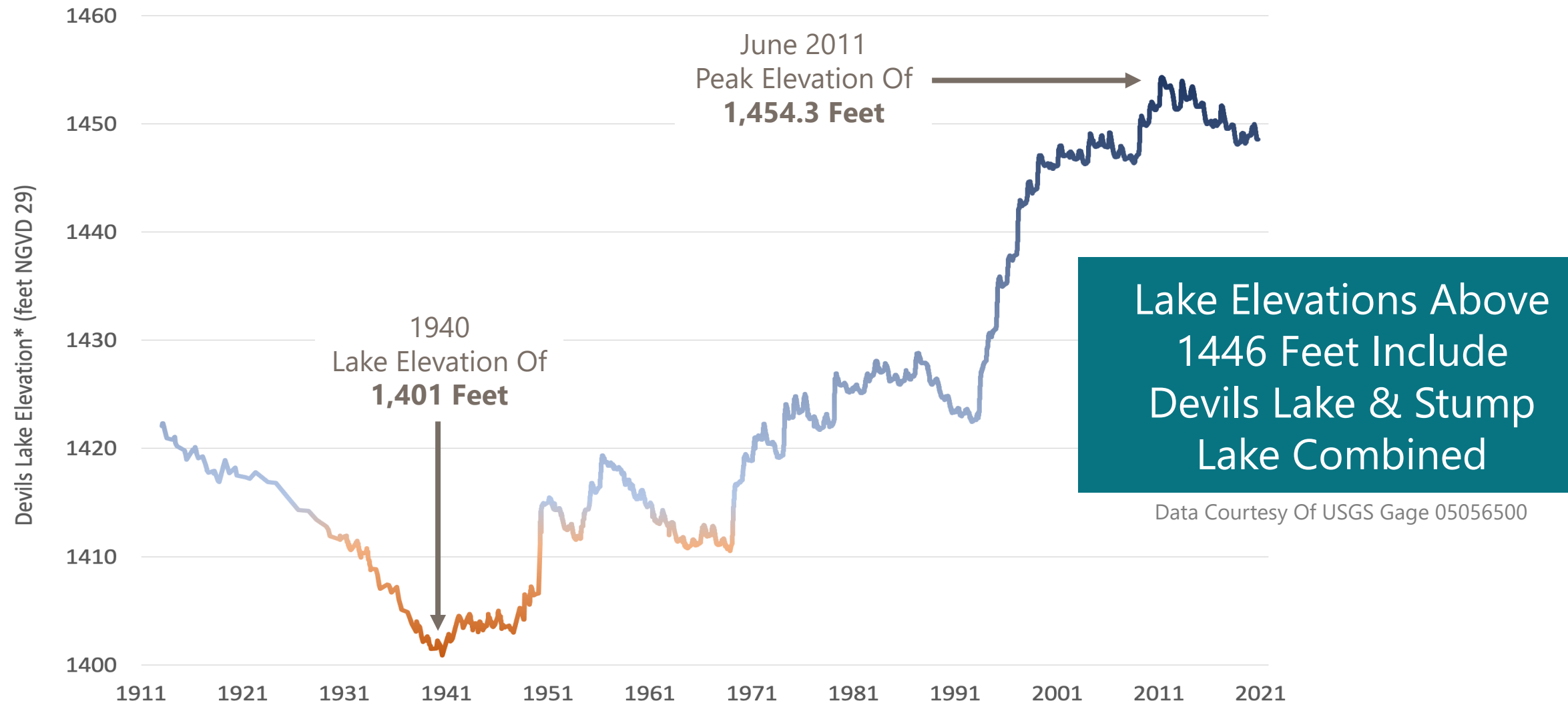
## Average Annual Estimates (2010-2020)

Precipitation = 20.4 Inches  
Inflow = 249,300 Acre-Feet  
(17.4 Inches On Average)

Evaporation = 30.3 Inches  
Outlet Discharge = 108,260 Ac-Ft  
(8.0 Inches On Average)

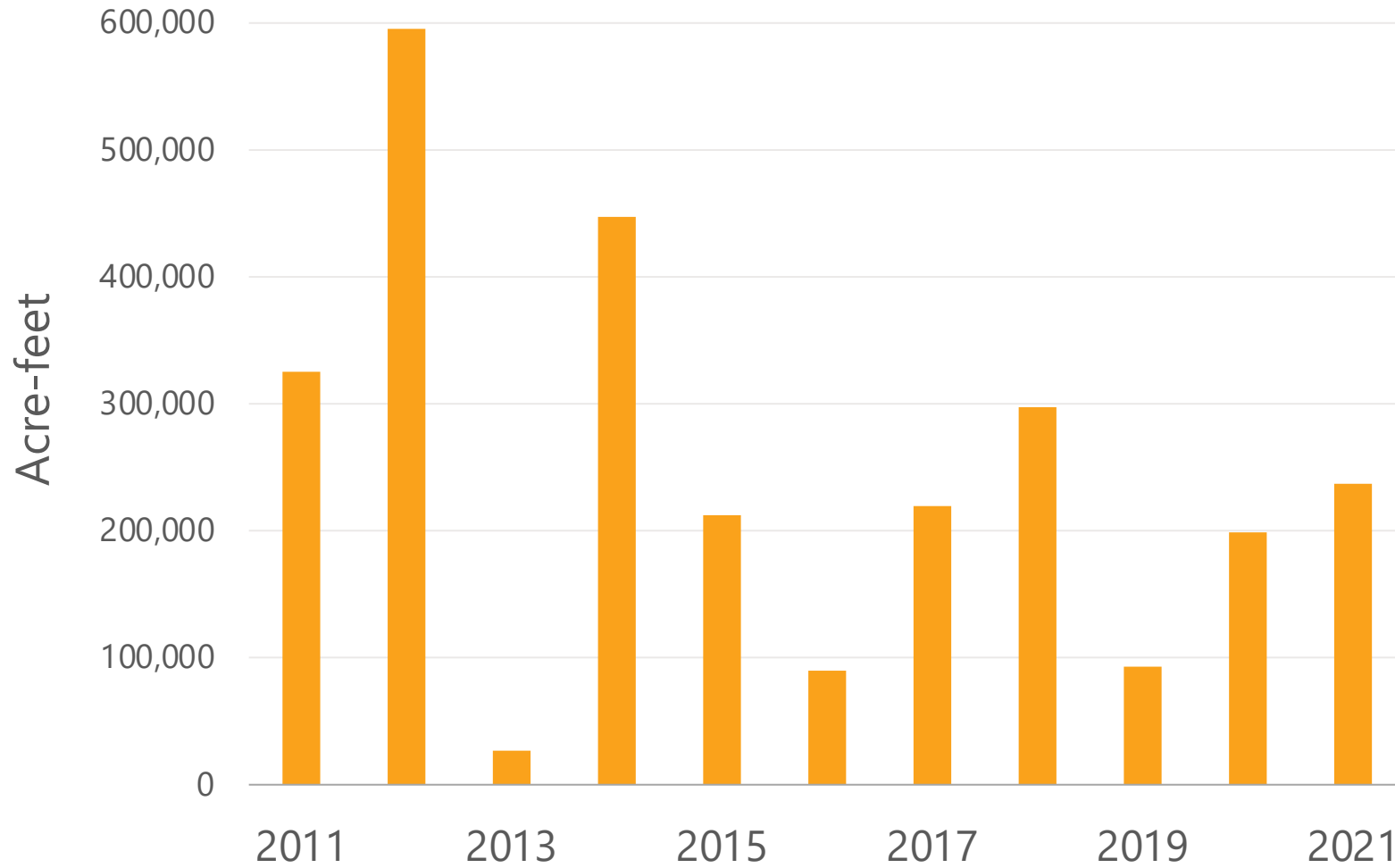


# DEVILS LAKE PERIOD OF RECORD ELEVATION





# DEVILS LAKE ESTIMATED INFLOW



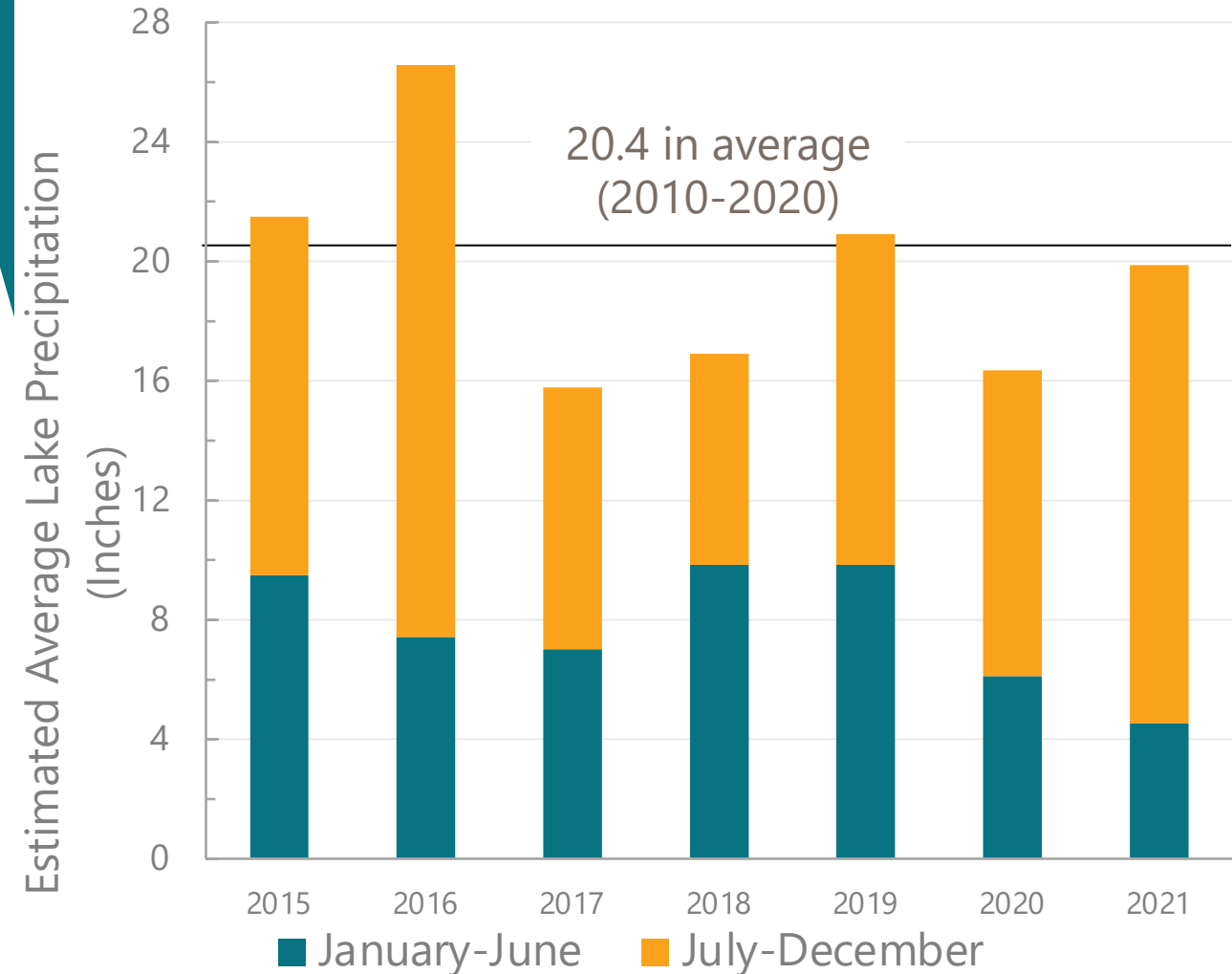
- Inflow Is Highly Variable & Influenced By Previous Years
- Average Inflow From 2010-2020 Has Been Approximately 249,300 Ac-Ft
- 2021 Estimated Inflow Was 229,000 Acre-Feet



# DEVILS LAKE PRECIPITATION (2015-2021)

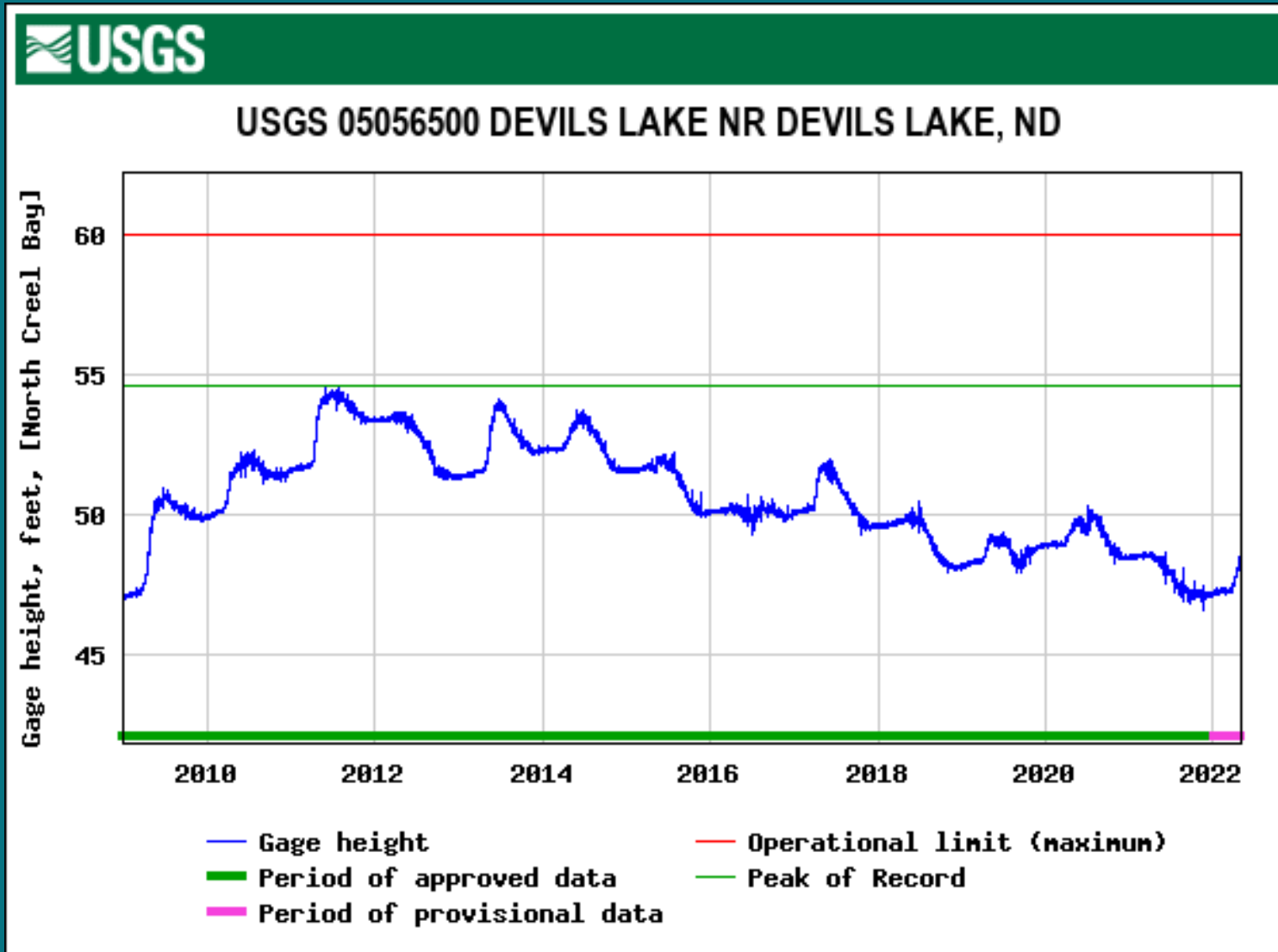
2021 Average Lake Precipitation  
Estimated To Be 17.67 Inches

Drier Conditions In Four Of The  
Five Past Years Have Contributed  
To Lower Lake Elevations





# LAKE ELEVATION 2009 - PRESENT

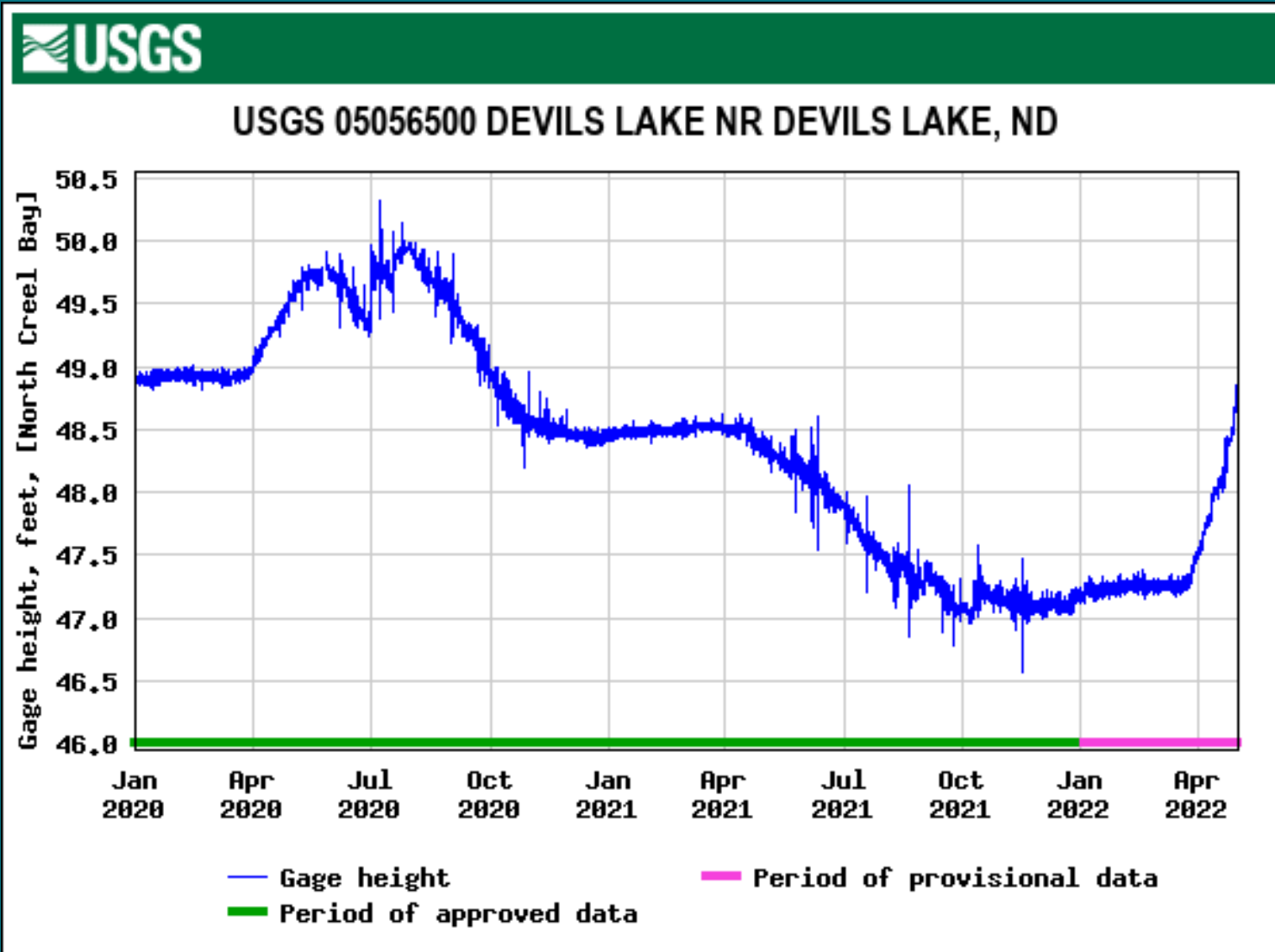


Devils Lake Peaked At  
1454.3 Feet In 2011

The Lake Has Shown A  
Steady Decline Over the Last  
10 Years, approx. 7 Feet



# LAKE ELEVATION 2020 - PRESENT



Historically Dry  
Conditions Throughout  
2021 Caused A Significant  
Drop In Lake Levels

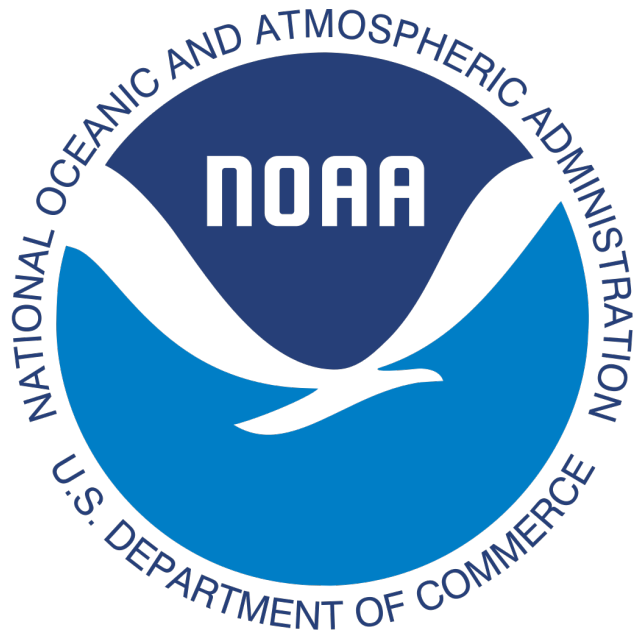
Devils Lake Fell to 1447 Feet  
In Early October of 2021

In 2022, Lake Rise & Inflow  
Have Been Increased By April  
Snowfall



# NATIONAL WEATHER SERVICE UPDATE

Amanda Lee  
NWS Grand Forks



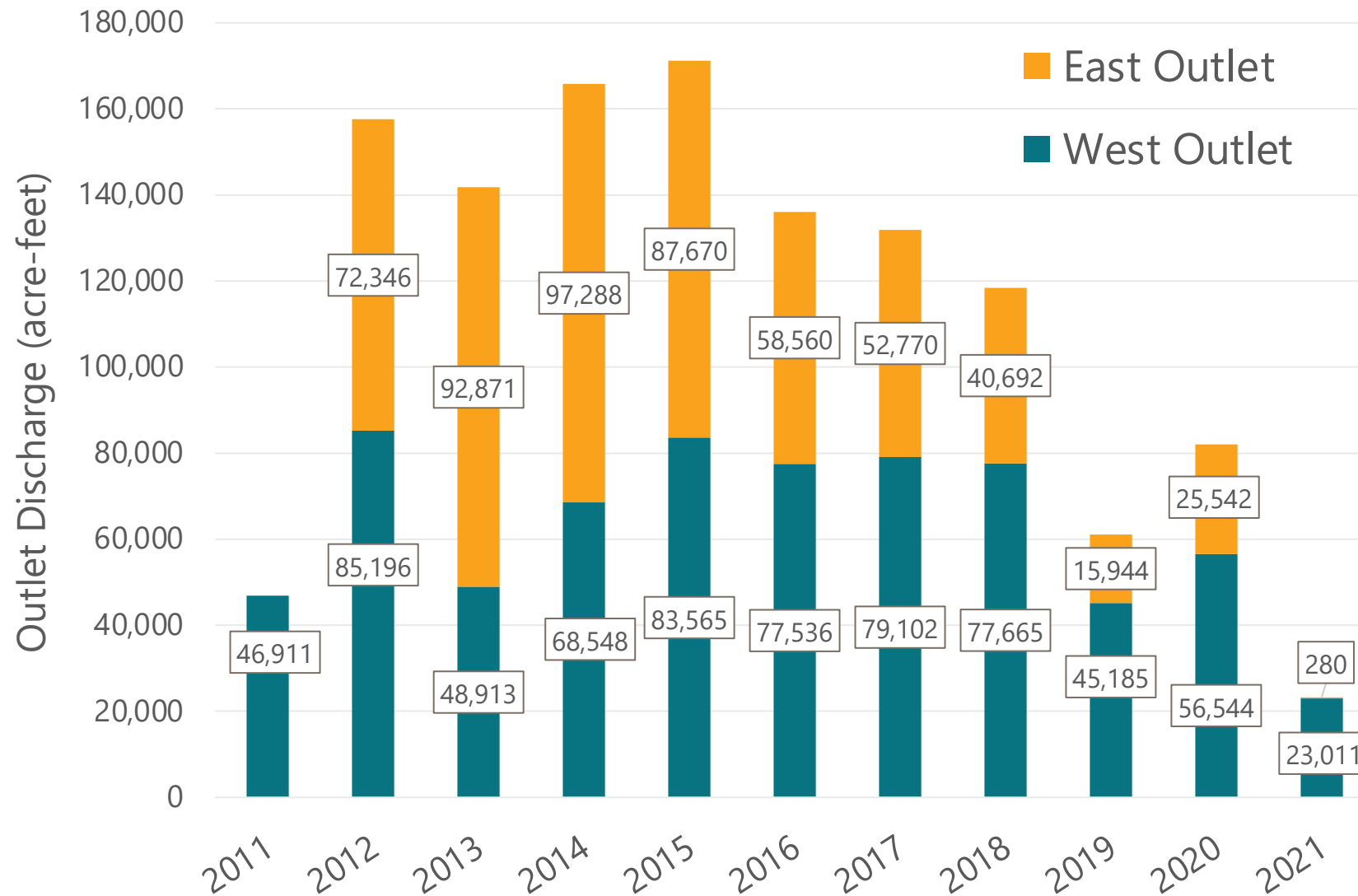


# 2021 OPERATIONAL SUMMARY





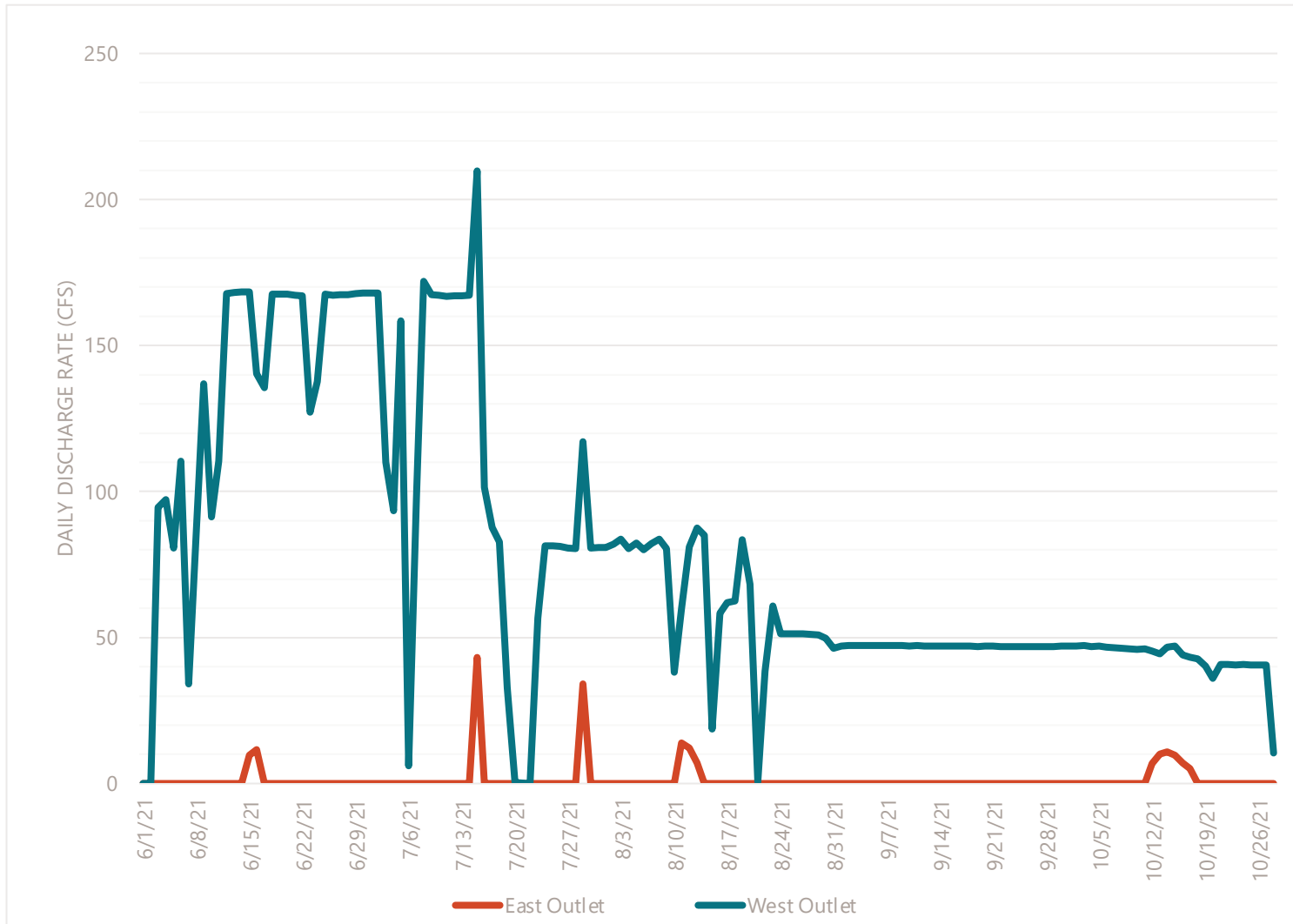
# DEVILS LAKE OUTLET DISCHARGE 2010 – 2021



- 2020 Total Discharge Was 82,086 Acre-Feet
- Outlets Discharged For 124 Days In 2020
- The Outlets Have Combined To Discharge Over 1.3M Ac-Ft
- Estimated Lake Elevation is 5.5 feet Higher Without Outlets



# 2021 OUTLET DISCHARGE RATE



- 2021 Operation Window June 1- October 28
- East Outlet Was Shut Down Due To Water Quality and Lake Level
- West Outlet Discharge Was 98% Of The Total

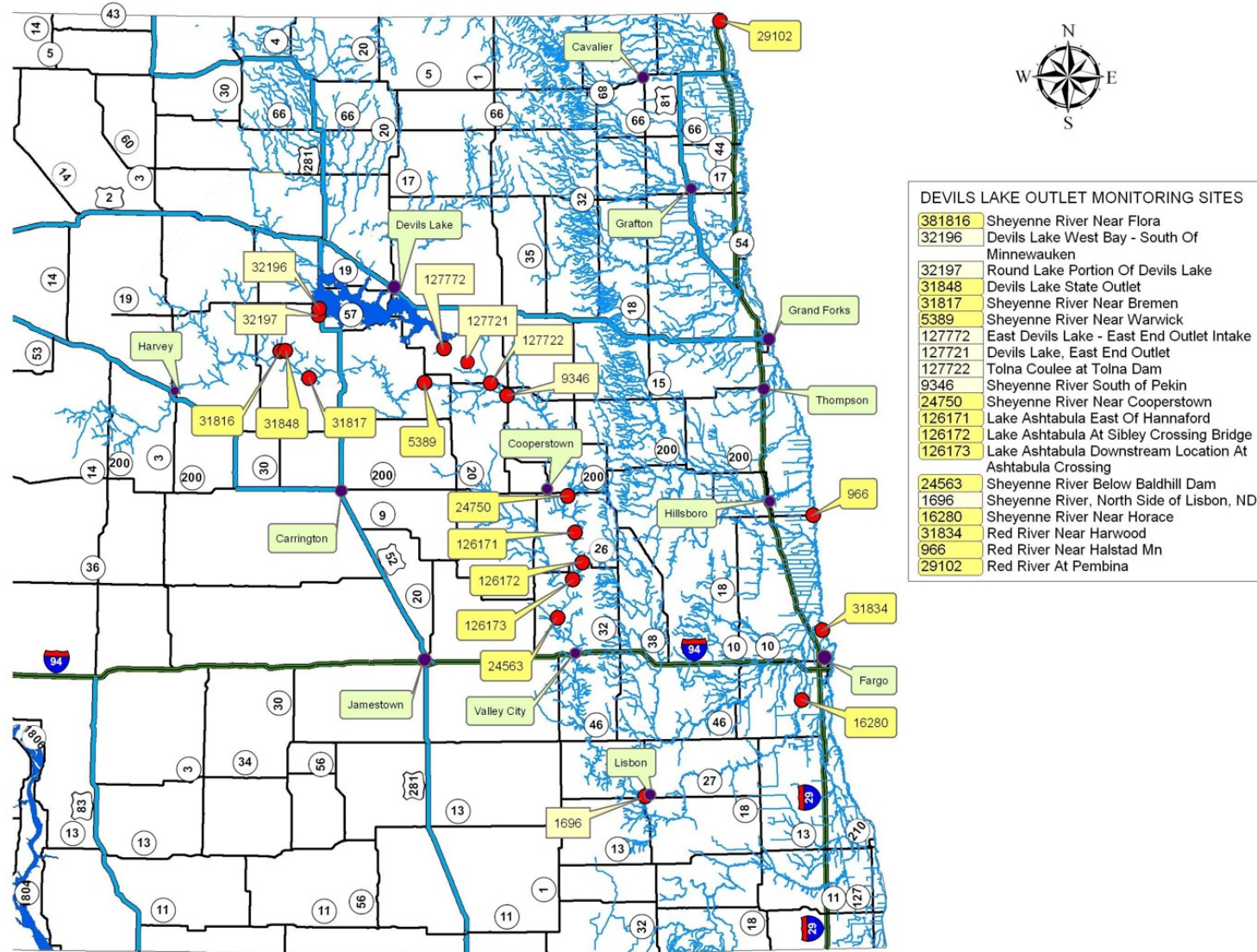


# 2021 WATER QUALITY REVIEW



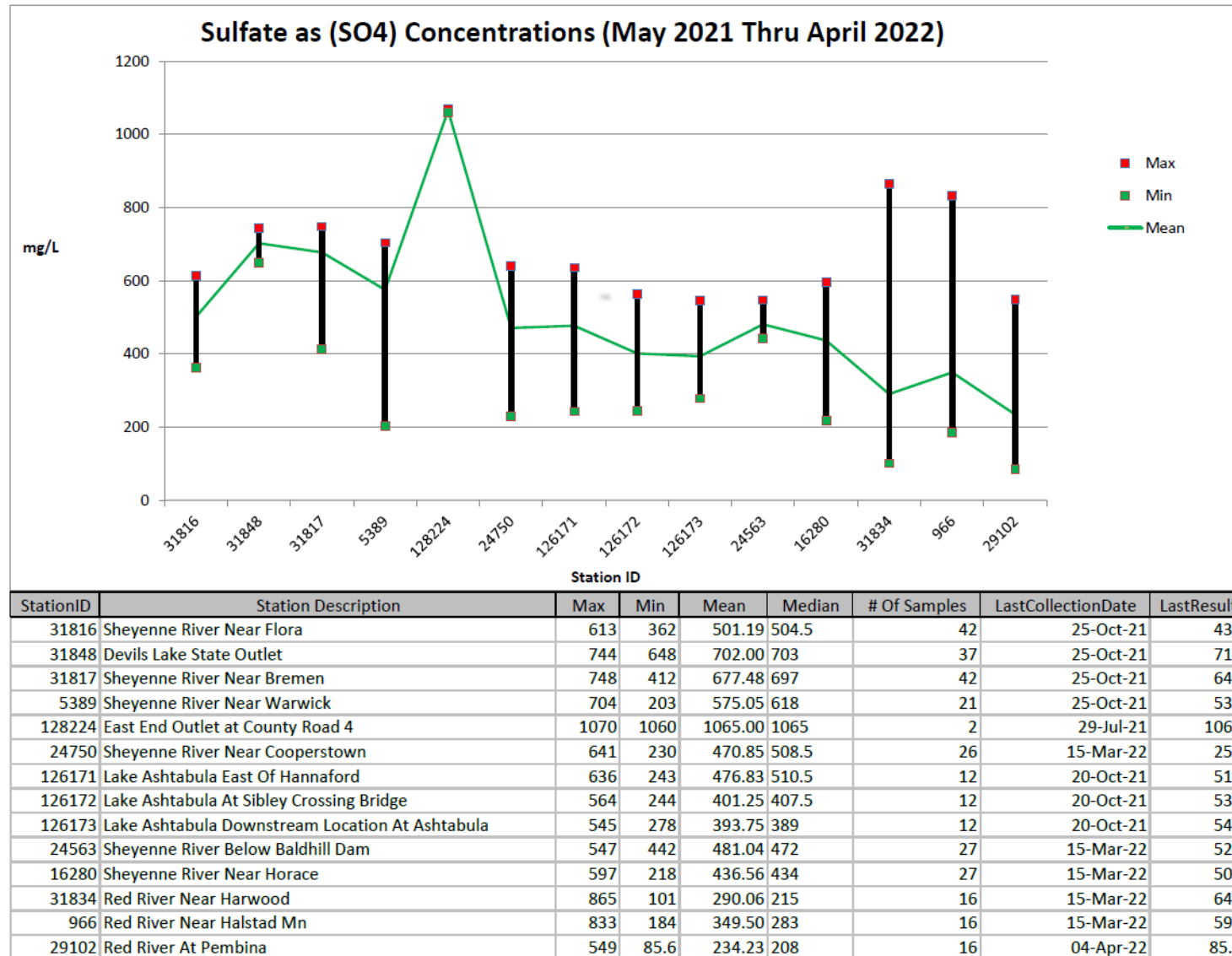


# DEVILS LAKE OUTLET MONITORING SITES



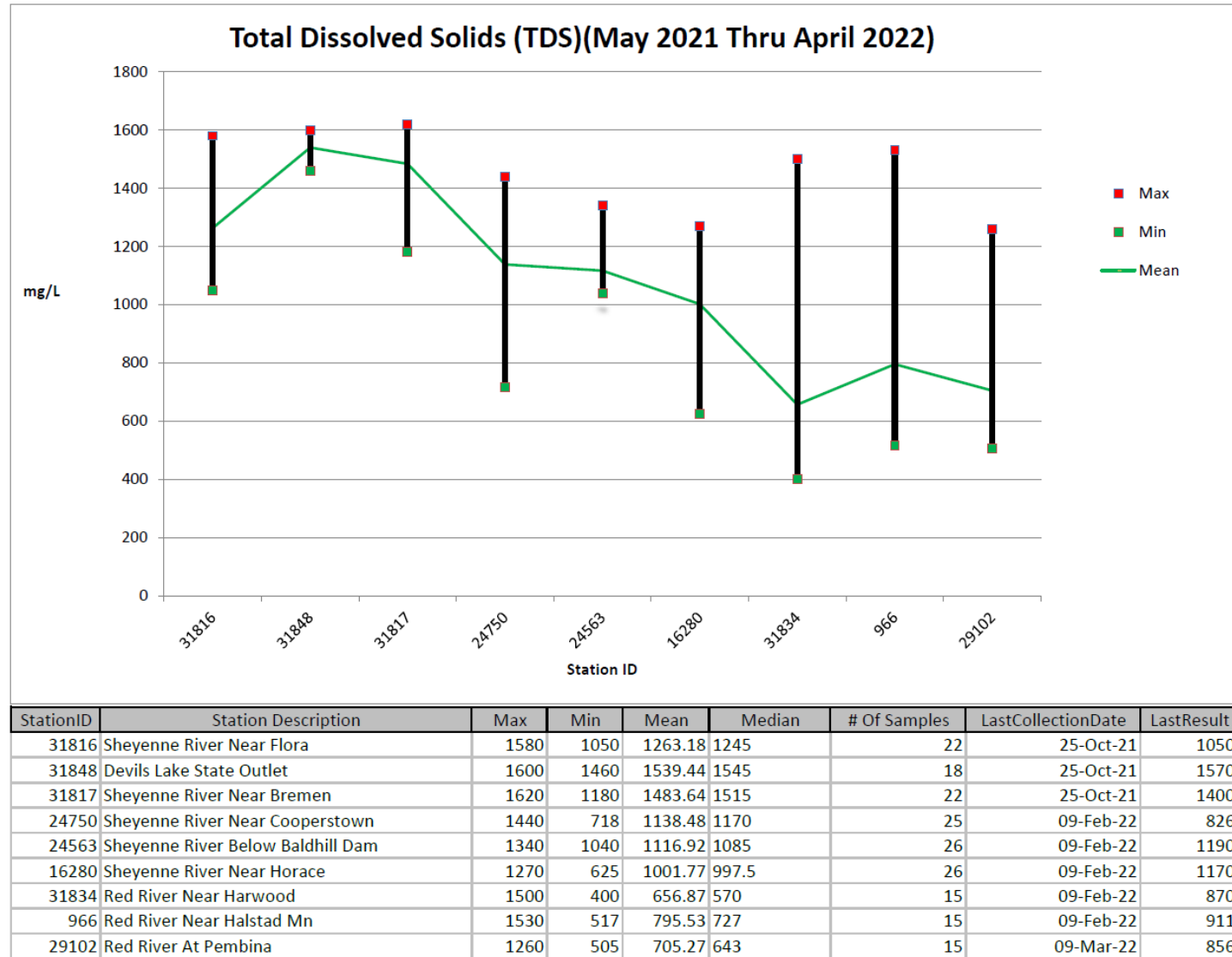


# SULFATE MONITORING



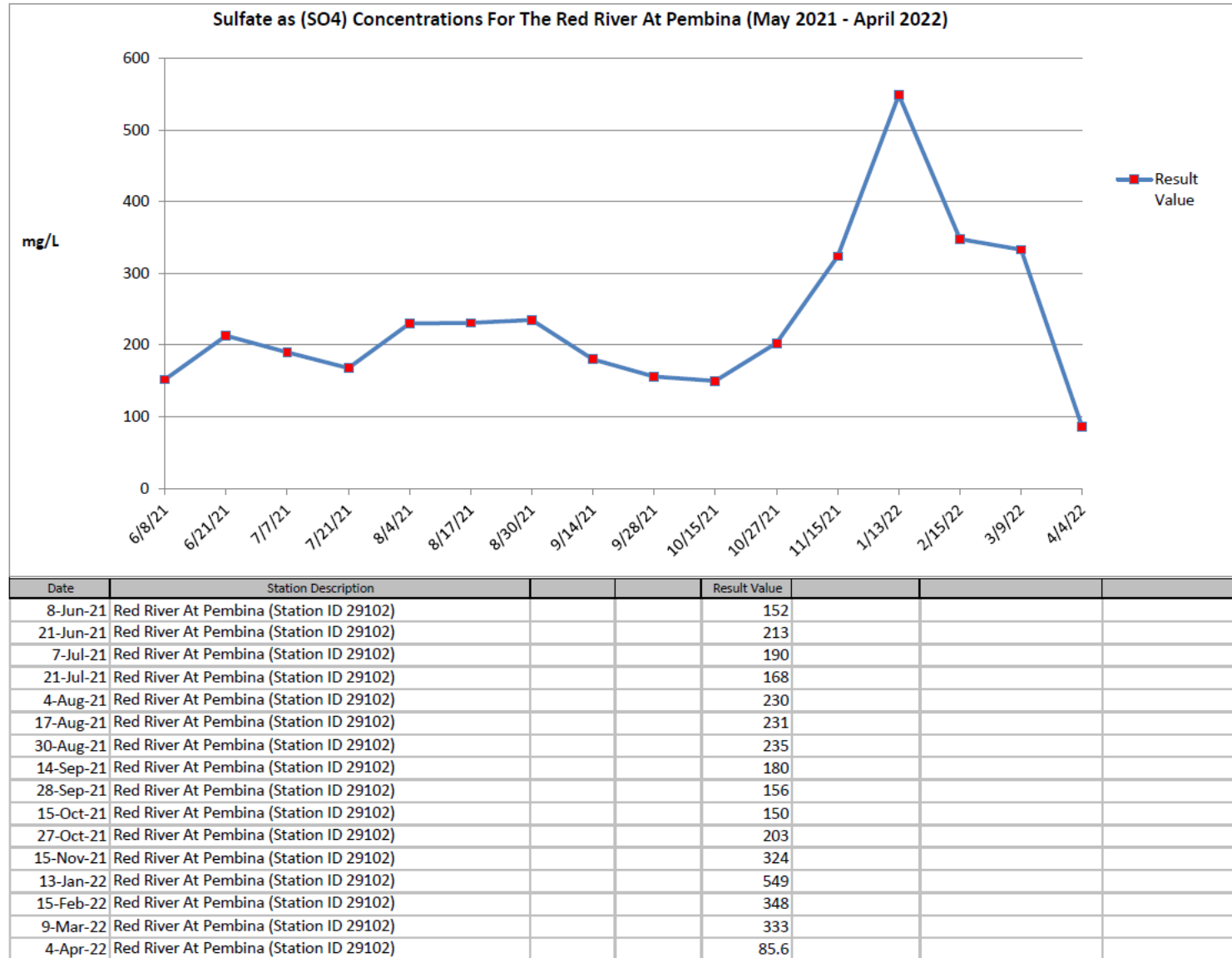


# TOTAL DISSOLVED SOLIDS MONITORING



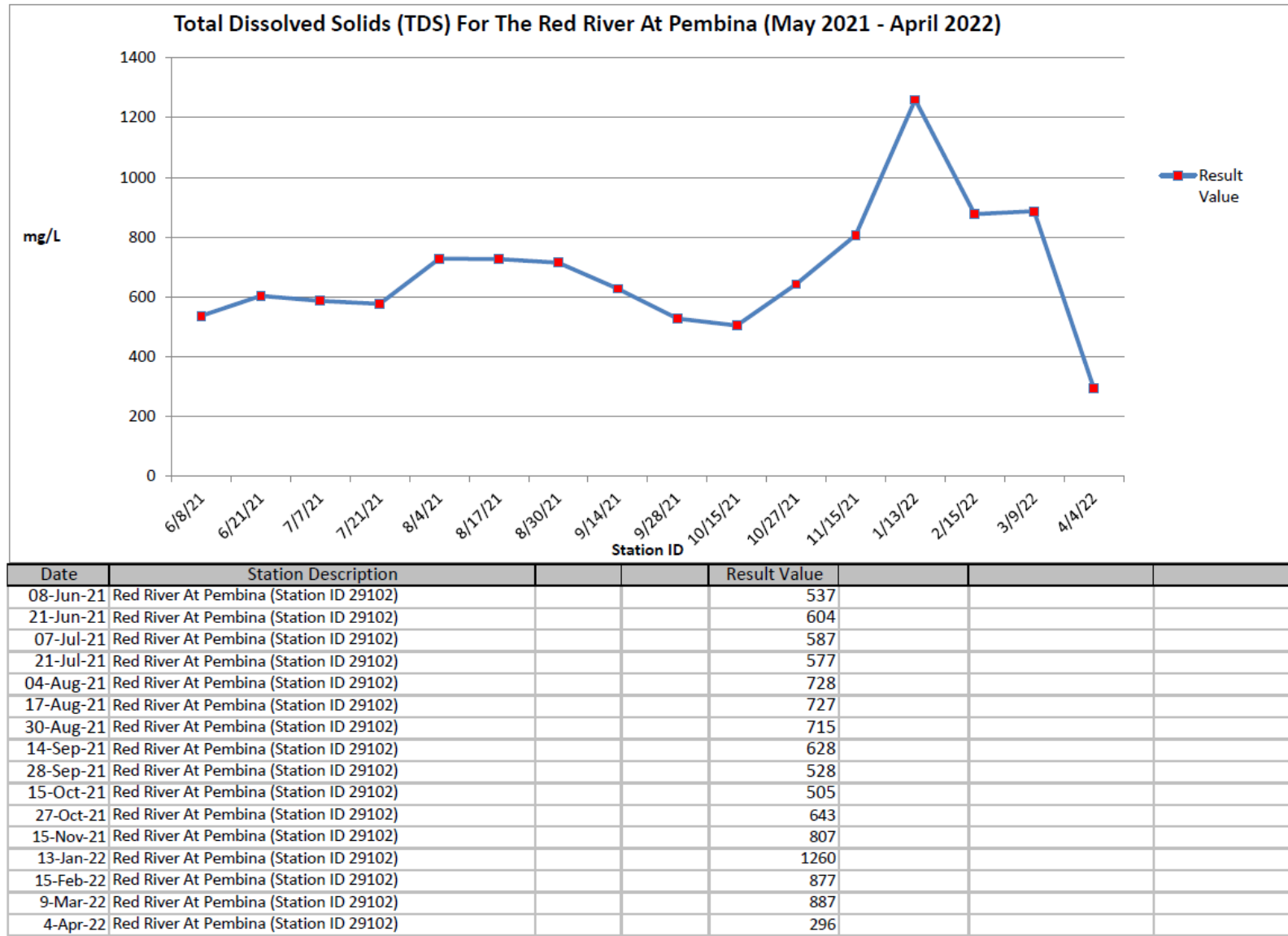


# SULFATE AT PEMBINA



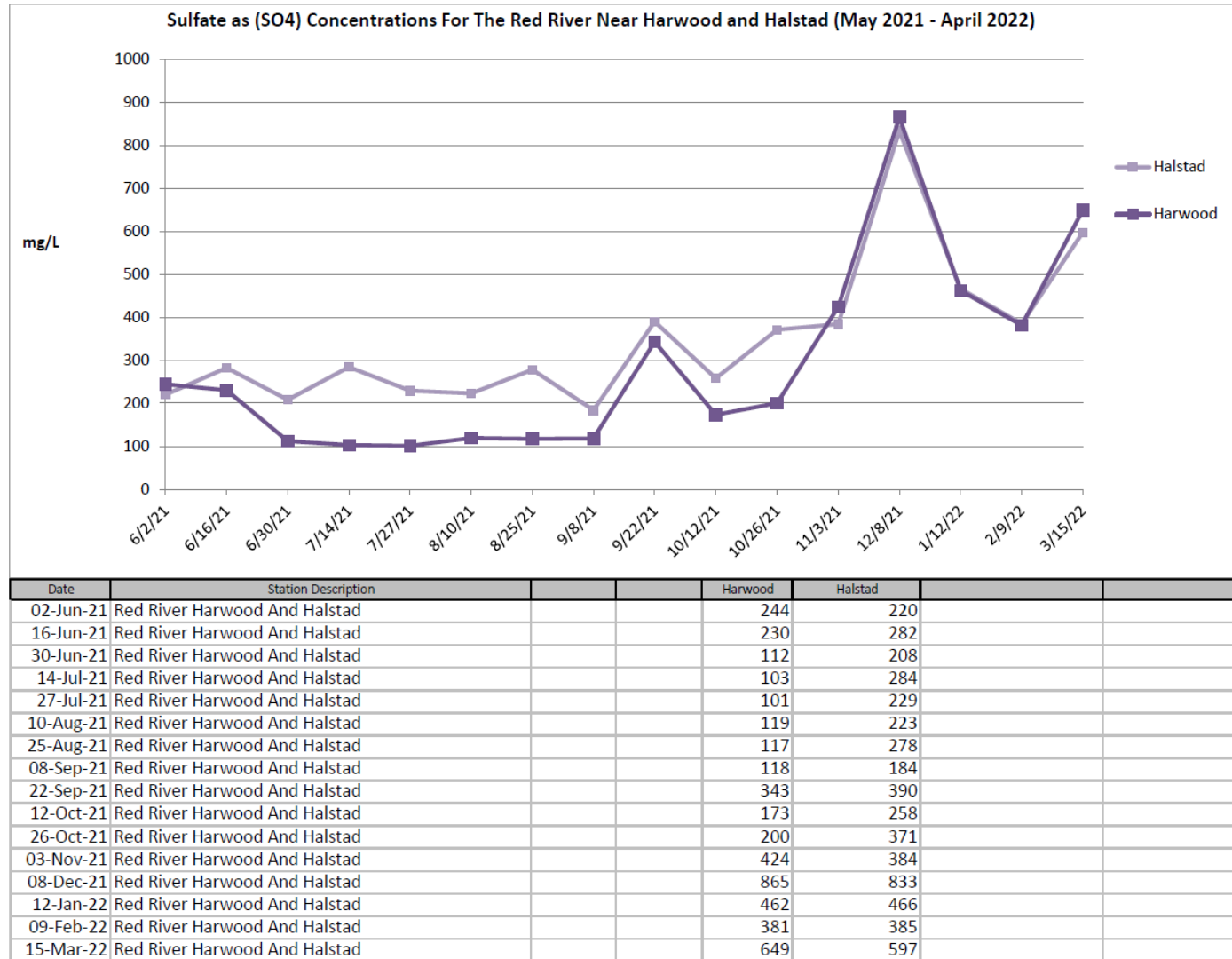


# TOTAL DISSOLVED SOLIDS AT PEMBINA



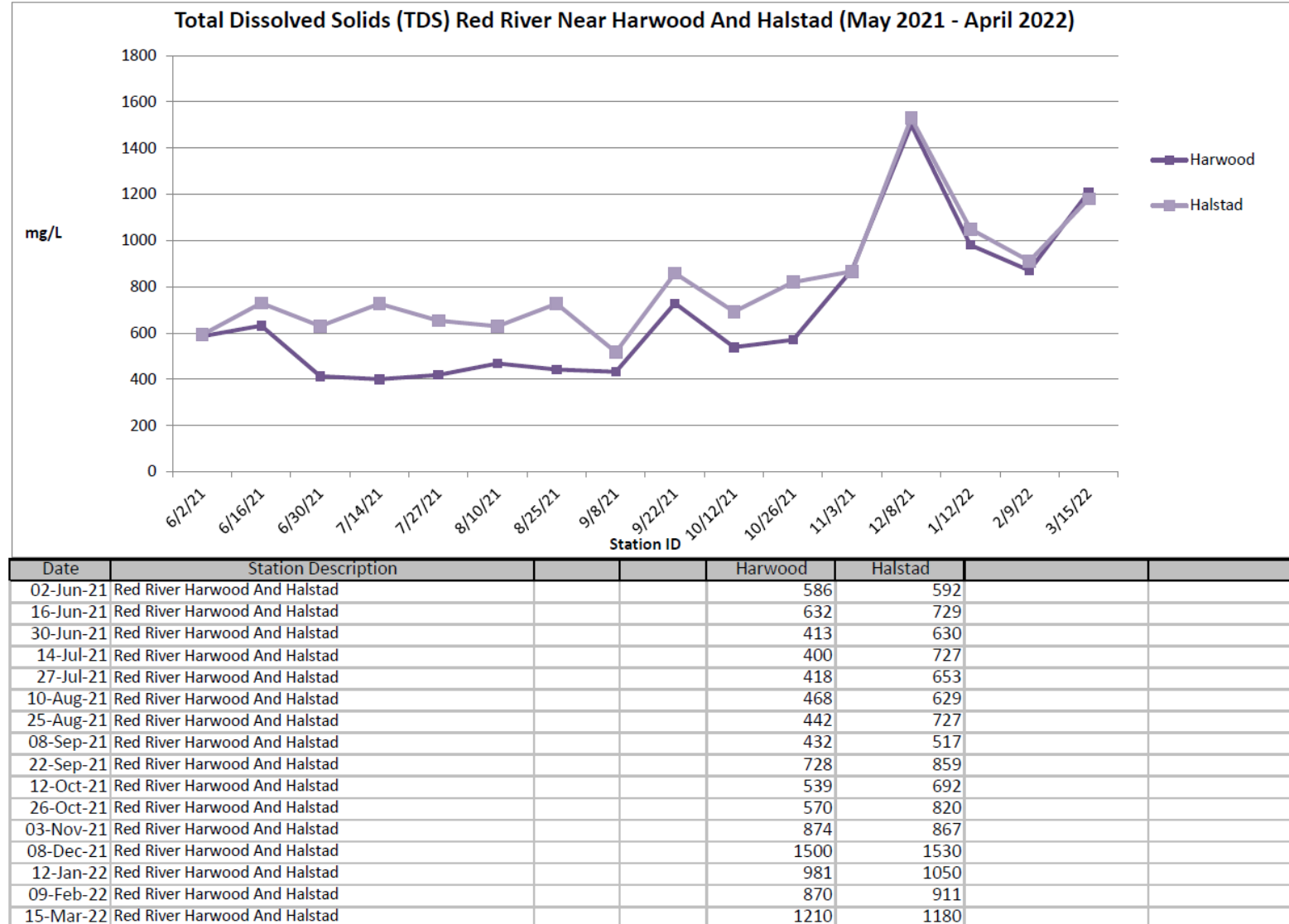


# SULFATE MONITORING NEAR HARWOOD AND HALSTAD



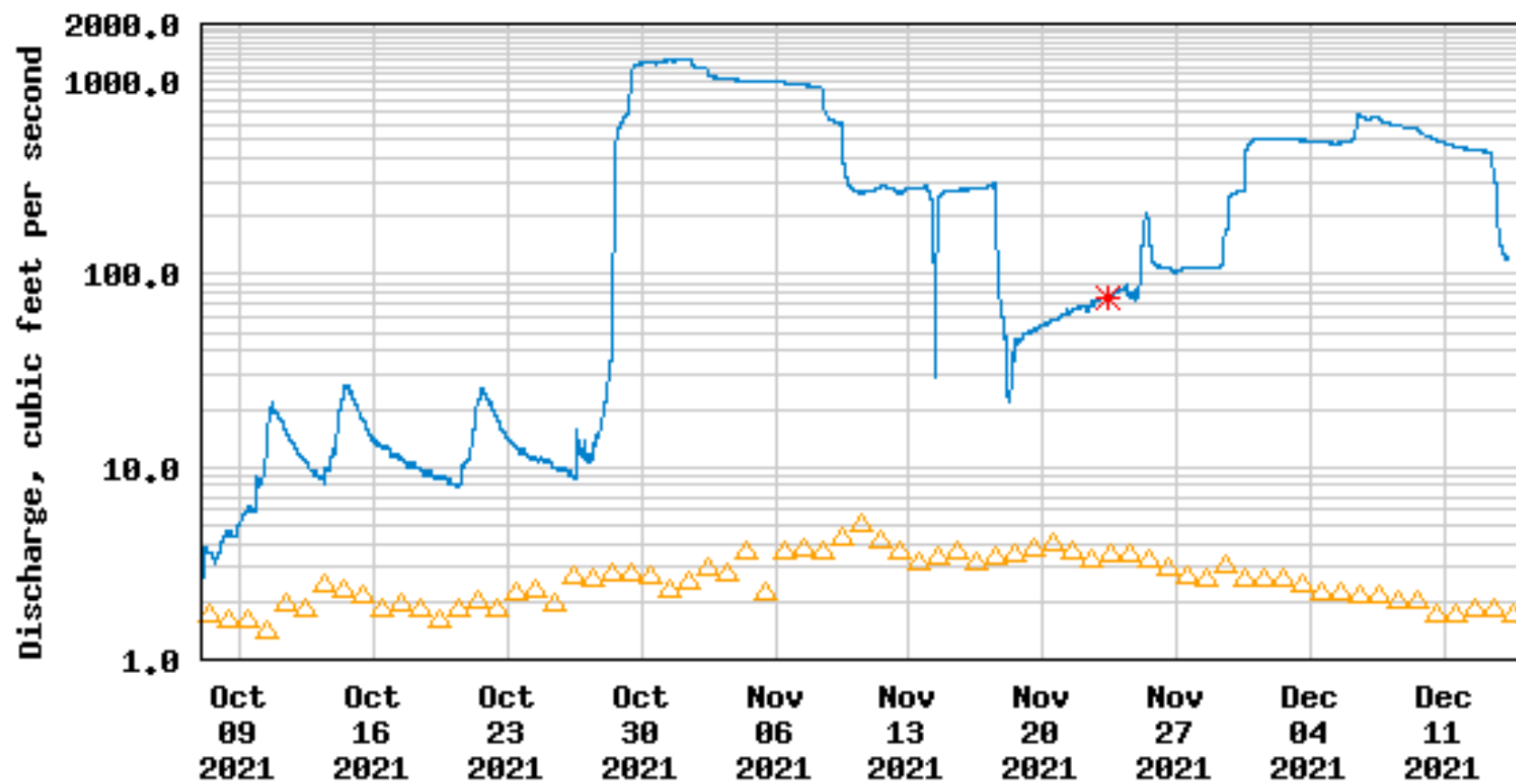


# TOTAL DISSOLVED SOLIDS NEAR HARWOOD AND HALSTAD





USGS 05050000 BOIS DE SIOUX RIVER NEAR WHITE ROCK, SD

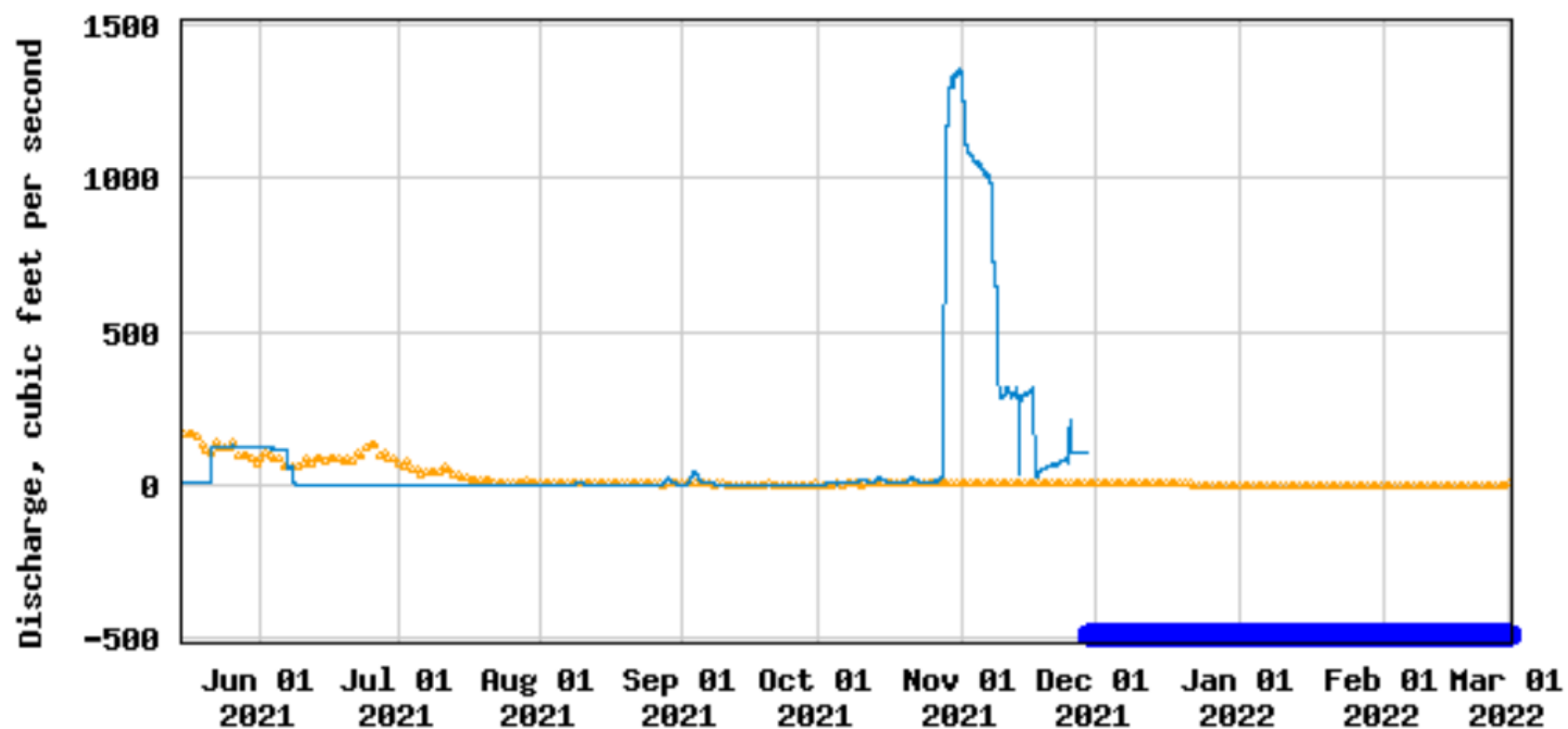


---- Provisional Data Subject to Revision ----

△ Median daily statistic (79 years) \* Measured discharge  
— Discharge



USGS 05050000 BOIS DE SIOUX RIVER NEAR WHITE ROCK, SD



---- Provisional Data Subject to Revision ----

• Median daily statistic (79 years)

— Discharge

● Value is affected by ice at the measurement site.



# OUTLOOK FOR 2022 OUTLET OPERATIONS





# THANK YOU

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[dwr@nd.gov](mailto:dwr@nd.gov)



[www.facebook.com/NDWaterResources](https://www.facebook.com/NDWaterResources)